Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Conditional Major/Synthetic Minor Draft Permit No. F-01-013
TOYO AUTOMOTIVE PARTS (USA), INC.
FOX BROTHERS FARM SCOTTVILLE ROAD, FRANKLIN, KY
May 11, 2001
KEITH METZKER, REVIEWER
AFS Plant I.D. # 21-213-00046
Application Log # 53710

SOURCE DESCRIPTION:

Toyo Automotive Parts (USA), Inc. has applied to construct/operate a facility that will manufacture automotive anti-vibration components (motor mounts). To manufacture this product Toyo:

1) shot blasts metal,
1a) optionally zinc phosphates the blasted metal,
2) applies an adhesive to the metal,
3) crimps the metal around a shaped piece of rubber, and
4) paints the part.

Other processes such as injection molding and assembly are also part of Toyo's manufacturing process. The source will be a conditional major and PSD synthetic minor source.

COMMENTS:

Type of control and efficiency

Emissions from EP01 (the boilers) are uncontrolled except for use of low NO_x burners.

PM emissions from EP03 (the shot blasters) are controlled by a bag filter. Control efficiency of the filters has been included in the emission factor. The blasters have been included in the application as insignificant activities and therefore total emissions are only known to be less than 5 tons/yr.

PM and mist emissions from EP04 and EP05 (the zinc phosphate process lines) are controlled by a packed bed scrubbers (mist eliminators). The scrubbers have been estimated by the manufacturer to have a control efficiency of 99%. Verification does not seem to be needed since the zinc phosphate lines would likely pass any applicable standard without the control device.

VOC emissions from all adhesive coating machines (EP06 – EP15) and all painting (EP25 – EP27) are to be captured through use of permanent total enclosures. These VOC emissions are subsequently controlled by a regenerative thermal oxidizer (RTO). The manufacturer estimates a control efficiency of 98% but testing is required to verify control efficiency.

The spray adhesive coating machines (EP06, EP09, and EP10) and the spray painter (EP25) are equipped with exhaust filters for control of PM emissions. None of the other coating or painting is equipped with any PM control since no PM emissions are expected. Exhaust filters have been assumed to have a 90% control efficiency.

No other controls are present.

COMMENTS (CONTINUED):

Emission factors and their source

EP01 (natural gas combustion) emission factors are based on the AP-42 emission factor for small boilers using low NO_x burners.

PM emissions from EP03 (the shot blasters) are based on chapter 13.2.6 of AP-42. A controlled PM emission factor of 0.69 lbs/1,000 lbs of shot has been assumed.

Emissions from EP04 and EP05 were estimated by Toyo using mass transfer equations. However, the estimates assume that water is emitted. Water is the most likely emission but it is not an emission of concern to the division. Based on this analysis, the emissions of concern will be less than the water emissions (because lower vapor pressures would be used if a similar mass transfer analysis were performed on pollutants of concern). If emissions were assumed to be all water, the controlled emission is estimated to be < 0.02 lbs/hr. The emission analysis justifies neglecting emissions from these lines. EP04 and EP05 have been assumed to have negligible emissions.

All VOCs used in adhesive coating machines (EP06 – EP15) and painting (EP25 – EP27) are assumed to be emitted. The RTO will control these VOC emissions.

All PM in raw materials used at the spray adhesive coating machines (EP06, EP09, and EP10) and the spray painter (EP25) have been assumed to be emitted. 25% of the PM has been assumed to remain on the motor mounts (based on estimates provided in the division's policy manual). The remaining 75% is exhausted though filters. The PM is either captured by the filters or released into the ambient air.

Emissions from the injection molding machines are based on AP-42 draft estimates for tire rubber extrusion. VOC emissions have been assumed to be 0.0000325 lbs/lb of rubber extruded. PM emissions have been neglected since the small amount formed will likely settle in the work environment.

All VOCs in the mold release used in TPE boot molding have been assumed to be emitted when used. No other emissions are assumed from the TPE boot molding process.

Ethylene glycol used in the hydraulic mount assembly is assumed to be 100% emitted.

Oil dipping for lubrication in the manufacturing process is assumed to have a 100% VOC emission factor.

Emissions from the trimming of rubber parts by the deflashing machines are assumed to be negligible since the size and nature of any particulates generated indicates that the PM should remain in the work environment.

PM emissions from arc welding have been assumed to be 57.0 lbs/1,000 lbs of electrode consumed. This is based on the AP-42 chapter 12.19 emission factor for electrode type E11018.

COMMENTS (CONTINUED):

Applicable regulations (continued)

EP01 (the boilers) is subject to 401 KAR 59:015, New indirect heat exchangers, because the boilers have a heat input capacity greater than one million BTU/hr and will be commenced after August 9, 1972. The boilers are not subject to 40 CFR 60 Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units, because the heat input capacity is less than ten million BTU/hr.

EP03 (the shot blasters) is subject to 401 KAR 59:010, New process operation, because both units will commence after July 2, 1975.

EP04 and EP05 (the zinc phosphate process lines) are subject to 401 KAR 59:010, New process operation, because both lines will commence after July 2, 1975.

The spray adhesive coating machines (EP06, EP09, and EP10) and the spray painter (EP25) are subject to 401 KAR 59:010, New process operation, because the units will commenced after July 2, 1975. The other adhesive coating machines and painter are not subject to 401 KAR 59:010 because particulate emissions will not be generated.

Injection molding machines are subject to 401 KAR 59:010, New process operation, because the machines will commence after July 2, 1975 and particulate emissions are possible.

The deflashing machines used for trimming of parts after molding are subject to 401 KAR 59:010, New process operation, because the machines will commence after July 2, 1975 and particulate emissions are likely.

The arc welders are subject to 401 KAR 59:010, New process operation, because the units will commence after July 2, 1975 and particulate emissions are likely.

All other units and activities are not subject to any regulations.

There are future MACTs for coating of metal and for coating of plastic parts that will likely not apply when promulgated because emissions from this source have been limited to less than MACT major source thresholds.

401 KAR 59:225, New miscellaneous metal parts and products surface coating operations, does not apply to the coating and painting because conditions will be taken to limit VOC below the major source level. There is no regulation for coating or painting of rubber.

40 CFR 63 Subpart B, Requirements for Control Technology, does not apply since conditions have been taken to limit HAP emissions below the major source thresholds.

40 CFR 64, Compliance Assurance Monitoring, does not apply since conditions have been taken to limit HAP emissions below the major source thresholds and therefore the source is not major.

PERIODIC MONITORING:

Emissions from EP01, natural gas combustion, are extremely unlikely to violate mass or opacity standards. Therefore, monitoring will not be required except to record the amount of natural gas combusted. Documentation of maintenance will assure compliance with standards.

PERIODIC MONITORING (CONTINUED):

Given the control devices used (filters) at EP03, there is little chance of violating a mass or opacity standard. For this reason, direct measurements of mass and opacity emissions will not be required but some assurance that the filters are working properly will be needed. First, the emissions must be captured. This is assured because EP03 is a closed system. Proper maintenance will help assure compliance. If there are any problems, they should be obvious to the equipment operator. Immediate corrective actions should be taken.

The nature of the zinc phosphate process lines assures compliance with any applicable standard. Proper operation and maintenance are the only requirements for these lines.

Since filter are used at the spray adhesive coating machines (EP06, EP09, and EP10) and the spray painter (EP25), there is little chance of violating a mass or opacity standard. For this reason, direct measurements of mass and opacity emissions will not be required but some assurance that the filters are working properly will be needed. To assure the division that the filters are working properly, the source will observe and log the condition of the filters daily. Filters must be replaced when clogged, torn, or otherwise ineffective. The other adhesive coating machines and painter should not generate particulate emissions and as a result will not require monitoring to demonstrate compliance with a mass or opacity standard.

Capture and control of VOC emissions from the adhesive coating machines and the painters must be demonstrated to show that the source is minor. To demonstrate that VOC emissions from the units are captured, an initial test shall be performed to demonstrate the capture efficiency realized for the VOC emissions. Subsequent capture demonstration shall be performed by continuously monitoring air flow into the capture device and activation of an alarm when the pressure is lower than a set value that represents insufficient capture. Additional verification of capture shall be provided by daily records of pressure measurements. Control will be demonstrated similarly. An initial test will be performed to establish control efficiency. Subsequent control will be demonstrated through a continuous strip chart recording of temperature in the control device.

No monitoring is required for the injection molding machines because particulates are of such size and nature that if the machines are operated and maintained properly compliance will be assured.

No monitoring is required for the deflashing machines because particulates are of such size and nature that they will fall to the ground in the work environment. Compliance with mass and opacity standards is assured under all conditions.

No monitoring is required for arc welding because particulates are of such size and nature that if the machines are operated and maintained properly compliance will be assured.

Only record keeping of VOC use is required on any of the other equipment or activities present.

EMISSION AND OPERATING CAPS DESCRIPTION:

The source has taken limits to avoid case-by-case MACT, Prevention of Significant Deterioration (PSD), and VOC major source status. Source wide VOC emissions have been limited to 90 tons/yr. Source wide HAP emissions have been limited to 9.0 tons/yr for individual HAPs and 22.5 tons/yr for combined HAPs. Monthly record keeping will be used to demonstrate compliance with the limits.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or record keeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.